

UST Inspector Training Webinar

Line Tightness Testing



 **Tanknology**

Line Tightness Testing

Tanknology TLD1 Method



Constant pressure line tightness testing is used by many testing vendors. The principles of the test are very similar from vendor to vendor. Tanknology's TLD1 test method will be used to illustrate the general principles of a "constant pressure" line tightness test.



Line Tightness Testing

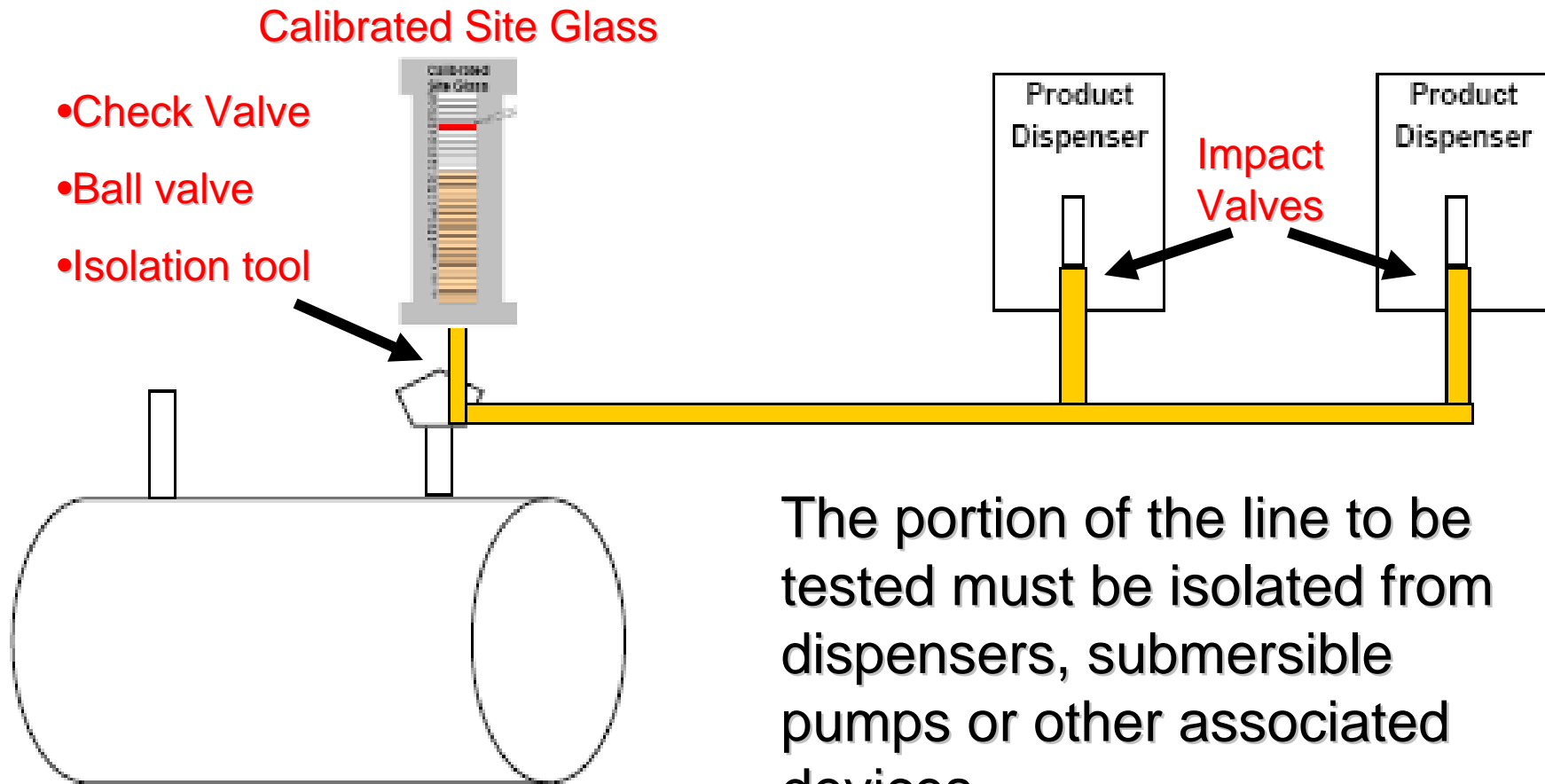
Tanknology TLD1 Method



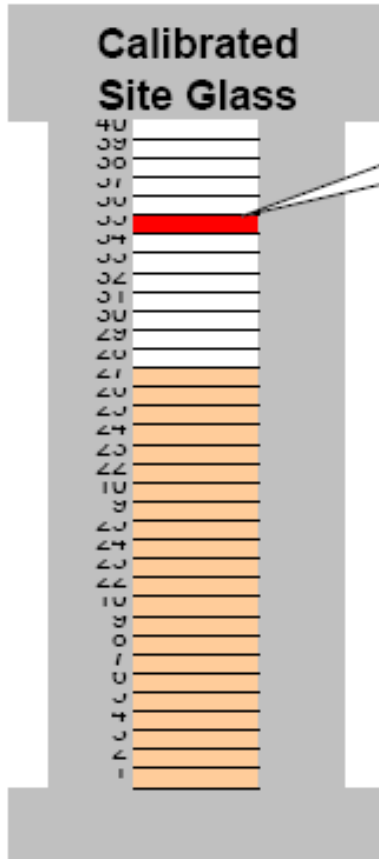
- Connect test apparatus to the product line
- Add like product until visible in the calibrated site glass
- Apply constant pressure using a bottled inert gas (usually Nitrogen)
- Record site glass levels at uniform intervals
- Calculate leak rate



Line Tightness Testing



Line Tightness Testing



Calibrated Increments

Example

IF

1. 1 increment = .005 gallons
2. We measure a 5 increment change in 10 minutes

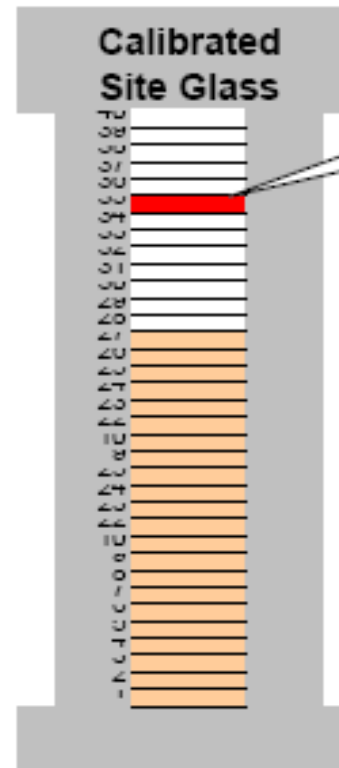
THEN

1. $.005 \times 5 = .025$ Gallon loss (10 minute loss)
2. $.025 \times 6 = .15$ GPH loss (Projected 60 minute loss)



Line Tightness Testing

- **Level Drop may NOT equal a Leak**
 - Dispenser Impact Valves
 - Packer "O" Ring
 - Crack STP head
 - Air / Vapor trapped in line
 - Product contraction
- **Technician Training & Experience**
- **Proper Tools**
- **Understanding Data Trends**



Line Tightness Testing

Field Technician Data Form

Tank #	1	Line #	1	Product:	Regular	Delivery:	Pressure	Pump Make:	
Material:	SWF	Length (ft):	150	Diameter (in):	2	Test PSI:	50	Pipe Type:	
LINE TEST	Reading #	Time	Level (cm)	Level Chg.	Vol. Chg.	Proj. GPH	Compression Test & Bleedback		
Tested from:	START	800	20.3	(cm)	x 0.00549	x 8	Zero Pressure Level:	25	
Dispenser 1	1st 10-min	810	16.3	4.0	0.022	0.132	Test Pressure Level:	20.3	
Impact Valve	2nd 10-min	820	13.5	2.8	0.015	0.092	Level Change (cm):	4.7	
	3rd 10-min	830	12.8	0.7	0.004	0.023	End Zero Pressure Level:	23.5	
Impact Valve	4th 10-min	840	12.7	0.1	0.001	0.003	Bleedback (cm):	1.5	
Operational?	5th 10-min	850	12.7	0.0	0.000	0.000	Final Leak Rate GPH:	0.000	
Yes	6th 10-min	900	12.7	0.0	0.000	0.000	Line Test Result (P / F)	Pass	



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Line Tightness Testing

Pass / Fail thresholds

CFR 40 280.44 Methods of release detection for piping

(b) *Line tightness testing*. A periodic test of piping may be conducted only if it can detect a 0.1 gallon per hour leak rate at one and one-half times the operating pressure.

Manufacturer Thresholds may be more stringent

Steel +/- .01GPH

(10 x more stringent)

Fiberglass & Flexible +/- .02 GPH

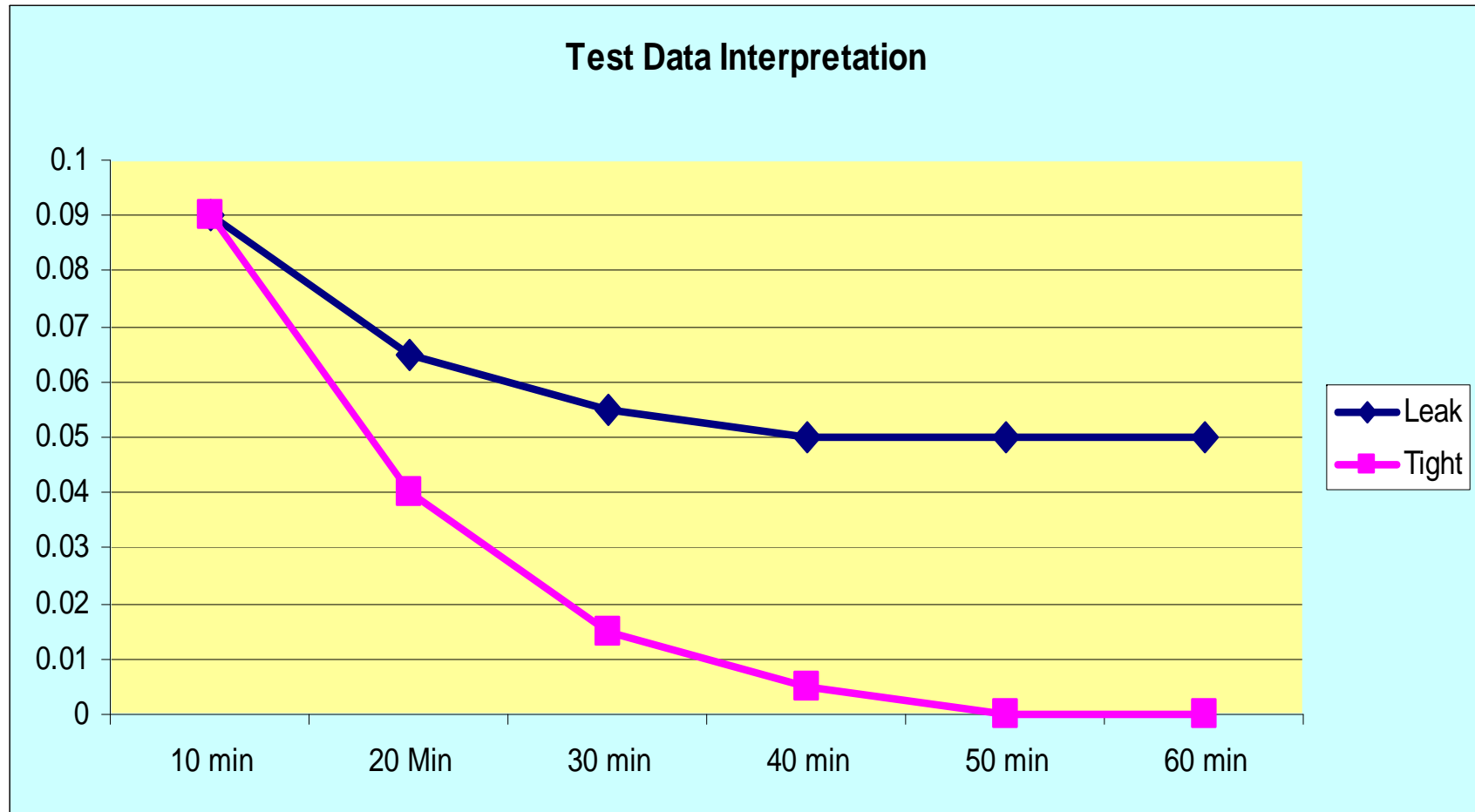
(5 x more stringent)

Suction Systems +/- .025 GPH

(4 x more stringent)



Line Tightness Testing



Line Tightness Testing

VENDOR	EQUIPMENT NAME	LEAK RATE/THRESHOLD/ MAX PIPELINE CAPACITY
Estabrook EZY CHEK Systems (originally listed as Horner EZY CHEK)	EZY-Chek Manual Line Leak Detector (for Rigid Pipelines)	0.1 gph/0.05 gph/426 gallons
	EZY-Chek Manual Line Leak Detector (for Flexible Pipelines)	0.1 gph/0.05 gph/101 gallons
MassTech International, Ltd.	ML3P Line Leak Detection System	0.1 gph/0.05 gph/172 gallons
Praxair Services, Inc. (originally listed as Tracer Research, Corp.)	Tracer Tight Line Test	0.1 gph and 0.005gph/A pipeline system should not be declared tight when tracer chemical is detected outside of the pipeline/Not limited by capacity
ProTank, Inc.	LTH-5000 Line Tester	0.1 gph/0.05 gph/40 gallons
	LTP-5000 Line Tester	0.1 gph/0.05 gph/41 gallons
Purpora Engineering, LLC (originally listed as Heath Consultants, Inc.)	Petro Tite Line Tester	0.1 gph/0.05 gph/129 gallons
	Petro Tite Line Tester (for Flexible Pipelines)	0.1 gph/0.05 gph/49.6 gallons
Tanknology	TLD-1	0.1 gph/0.05 gph/172 gallons
	TLD-1 (Flexible Pipelines)	0.1 gph/0.05 gph/119.4 gallons
Training and Services Corp. (originally listed as Hasstech)	AcuRite (for Rigid and Flexible Pipelines)	0.1 gph/0.01 gph/150 gallons
Triangle Environmental, Inc.	TEI Model LT-3, Version 1.0	0.1 gph/0.05 gph/80 gallons



Line Tightness Testing

VENDOR	TECHNICIAN CERTIFICATION	EQUIPMENT CALIBRATION
Estabrook EZY CHEK Systems (originally listed as Horner EZY CHEK)	Technicians must be certified by the manufacturer prior to using this equipment and recertified every two years.	System must be checked annually in accordance with manufacturer's instructions
MassTech International, Ltd.	None Specified	None Specified
Praxair Services, Inc.	None Specified	None Specified
ProTank, Inc.	None Specified	System must be checked annually and, if necessary, calibrated in accordance with manufacturer's instructions.
Purpora Engineering, LLC (originally listed as Heath Consultants, Inc.)	None Specified	System must be checked annually and, if necessary, calibrated in accordance with manufacturer's instructions.
Tanknology	Technicians must be certified by the manufacturer prior to using this equipment and recertified every two years.	None Specified
Training and Services Corp.	None Specified	System must be checked annually and, if necessary, calibrated in accordance with manufacturer's instructions.
Triangle Environmental, Inc.	None Specified	Sensors must be checked annually and calibrated semi-annually in accordance with manufacturer's instructions.
Western Environmental Resources	None Specified	Sensors must be checked annually and calibrated semi-annually in accordance with manufacturer's instructions.

* Information source, National Work Group on Leak Detection Evaluation website

